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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,055	09/17/2003	Geoff Barrett	1875.5100000	3239

26111 7590 10/15/2009  
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
1100 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER
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LI, AIMEE J

ART UNIT	PAPER NUMBER
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2183

MAIL DATE	DELIVERY MODE
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10/15/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/664,055	<b>Applicant(s)</b> BARRETT ET AL.	
	<b>Examiner</b> AIMEE J. LI	<b>Art Unit</b> 2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2009 and 29 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6 and 8-22 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2 and 4-6 is/are allowed.
- 6) ☒ Claim(s) 8 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 9-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-2, 4-6, and 8-22 have been considered.
2. In view of the Appeal Brief filed on 26 June 2009, PROSECUTION IS HEREBY REOPENED. See the rejection set forth below.
3. To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

4. A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below.

### ***Papers Submitted***

5. It is hereby acknowledged that the following papers have been received and placed of record in the file: Appeal Brief as filed 23 February 2009 and Appeal Brief as filed 29 June 2009.

### ***Response to Arguments***

6. Applicant's arguments, see Appeal Briefs, filed 23 February 2009 and 29 June 2009, with respect to the rejection(s) of claim(s) have been fully considered and are persuasive. Therefore,

Art Unit: 2183

the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the following.

***Allowable Subject Matter***

7. Claims 1-2 and 4-6 are allowed.

8. The following is an examiner's statement of reasons for allowance: The independent claim recites "...if an external interrupt request or an interrupt pseudo-instruction is received by the processor, comparing data content of a program counter with data content of an interrupt register and replacing the actual instruction in an instruction fetch stage of the processor with the pseudo-instruction when the data content of the program counter matches the data content of the interrupt register..." This limitations, when taking this limitation in consideration with other limitations in the claims, has not been taught in the prior art searched in found. Specifically, the prior art searched and found has not taught comparing the PC with an interrupt register after an external interrupt request of an interrupt pseudo-instruction has been received and replacing the actual instruction with a pseudo-instruction when the comparison results in a match. The prior art searched and found has taught generating an interrupt in response to the result of a comparison between the PC and the interrupt register and/or inserting interrupt service routine instructions, not performing the comparison if an interrupt has been received and replacing the actual instruction with an interrupt pseudo-instruction when the comparison results in a match.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2183

10. Claims 9-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art searched and found have not taught the limitations of claim 9, which claims 10-19 depend from, when the limitations of claim 9 are taken in combination with other limitations found in independent claim 8.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claim 8 is rejected under 35 U.S.C. 102(e) as being taught by Cocca U.S. Patent

Application Publication 2003/0005212 (herein referred to as Cocca). Cocca has taught

14. An interrupt verification support mechanism device for a computer system comprising

- a. a processor (Cocca Figure 5, element 501) and
- b. an input for external interrupt requests or interrupt pseudo-instructions communicatively coupled to the processor (Cocca Abstract; paragraphs 0011-0012, 0016, 0048-0049; Figure 5; Figure 6),
- c. wherein the device includes a set of one or more interrupt registers each of which contains information (Cocca paragraphs 0046-0047; Figure 4, element 405), the

Art Unit: 2183

information including at least a program counter of the instruction which is to be interrupted and a sort of interrupt to use, so as to enable the device to process at least one actual instruction (Cocca Abstract; paragraphs 0011-0012, 0016, 0048-0049; Figure 5; Figure 6), and

- d. if an external interrupt request is received by the processor, the at least one-actual instruction is replaced with the pseudo-instruction (Cocca Abstract; paragraphs 0011-0012, 0016, 0048-0049; Figure 5; Figure 6).

***Claim Rejections - 35 USC § 103***

15. Claims 8 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara U.S. Patent Number 5,664,199 (herein referred to as Kuwahara) in view of Cocca U.S. Patent Application Publication 2003/0005212 (herein referred to as Cocca).

16. Referring to claim 8, Kuwahara has taught an interrupt verification support mechanism device for a computer system comprising

- a. a processor (Kuwahara Figure 1, element 10) and
- b. an input for external interrupt requests or interrupt pseudo-instructions communicatively coupled to the processor (Kuwahara column 2, lines 49-56; Figure 1, element 75),
- c. wherein the device includes a set of one or more interrupt registers each of which contains information (Kuwahara Figure 1, element 90), the information including at least a program counter of the instruction which is to be interrupted and a sort of interrupt to use, so as to enable the device to process at least one actual

Art Unit: 2183

instruction (Kuwahara column 3, line 34 to column 4, line 28; Figure 3A; Figure 3B).

17. Kuwahara has not explicitly taught if an external interrupt request is received by the processor, the at least one-actual instruction is replaced with the pseudo-instruction. Cocca has taught if an external interrupt request is received by the processor, the at least one-actual instruction is replaced with the pseudo-instruction (Cocca Abstract; paragraphs 0011-0012, 0016, 0048-0049; Figure 5; Figure 6). A person of ordinary skill in the art at the time the invention was made would have recognized the correction interrupts of Cocca ensure a program correctly executes. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the correction interrupts of Cocca in the device of Kuwahara to ensure correct program execution.

18. Referring to claim 20, Kuwahara in view of Cocca has taught the device of claim 8 wherein the pseudo-instruction is created by a co-processor connected to the processor (Kuwahara Figure 1, elements 20, 15, 75).

19. Referring to claim 20, Kuwahara in view of Cocca has taught the device of claim 20 wherein the device is a media decoding system, the processor is a core decoder processor and the co-processor is a decoding accelerator adapted to assist the core processor with a decoding function (Kuwahara column 3, line 34 to column 4, line 28; Figure 3A; Figure 3B).

20. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara in view of Cocca, as applied to claim 20 above, and further in view of Official Notice. Kuwahara in view of Cocca has not explicitly taught the device of claim 20 wherein the processor is a reduced instruction set computer (RISC) processor. Official Notice is taken on this limitation. A

Art Unit: 2183

person of ordinary skill in the art at the time the invention was made would have recognized that the reduced instruction set is a widely used instruction set type and has smaller memory requirements for instructions, thereby increasing compatibility and reducing required memory space per instructions. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the RISC instruction set type in the device of Kuwahara in view of Cocca to increase compatibility and reduce required instruction memory space.

### ***Conclusion***

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AIMEE J. LI whose telephone number is (571)272-4169. The examiner can normally be reached on M-T 7:00am-4:30pm.
22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Application/Control Number: 10/664,055

Page 8

Art Unit: 2183

/Eddie P Chan/

Supervisory Patent Examiner, Art Unit 2183

12 October 2009

/Aimee J Li/

Primary Examiner, Art Unit 2183